

LISTING OF CLAIMS

1. (Previously Presented):

A composite material which comprises:

(a) finely divided graphite platelets, wherein a precursor graphite has been expanded by heating in a microwave or radiofrequency wave applicator and then pulverized to produce the platelets, which platelets consist essentially of single platelets which are less than 200 microns in length; and

(b) a polymer having the graphite platelets dispersed therein.

2. (Previously Presented):

A composite material which comprises:

(a) finely divided graphite platelets, wherein a precursor graphite has been expanded by heating in a microwave or radiofrequency wave applicator and then pulverized to produce the platelets, which platelets are single platelets with a length less than about 200 microns and a thickness of less than about 0.1 microns; and

(b) a polymer having the graphite platelets dispersed therein, wherein the composite material contains up to about 50% by volume of the graphite platelets.

3. (Original):

The composite material of Claim 2 wherein the graphite platelets are present in an amount so that composite material is conductive.

4. (Original):

The composite material of any one of Claims 1, 2 or 3 wherein the polymer is a thermoplastic or thermoset polymer.

5. (Previously Presented):

The composite material of any one of Claims 1, 2 or 3 wherein the precursor a graphite contained a chemical which was vaporized at least in part by the heating to expand the precursor graphite.

6. (Previously Presented):

The composite material of any one of Claims 1, 2 or 3 wherein the precursor graphite has been expanded by heating a graphite precursor with the microwave applicator.

7. (Original):

The composite material of any one of Claims 1, 2 or 3 wherein the polymer and the expanded graphite have been heated together with a radiofrequency wave applicator.

8. (Original):

The composite material of any one of Claims 1, 2, or 3 wherein the polymer is an epoxy resin.

9. (Previously Presented):

The composite material of any one of Claims 1, 2 or 3 wherein the a precursor graphite has been treated with a fuming oxy acid and heated by the microwave or radiofrequency wave applicator to expand the precursor graphite.

10. (Original):

The composite material of any one of Claims 1, 2 or 3 wherein the polymer is thermoplastic and is selected from the group consisting of polyamides, proteins, polyesters, polyethers, polyurethanes, polysiloxanes, phenol-formaldehydes, urea-formaldehydes, melamine-formaldehydes, celluloses, polysulfides, polyacetals, polyethylene oxides, polycaprolactams, polycaprolactons, polylactides, polyimides, and polyolefins.

11. (Previously Presented):

The composite material of any one of Claims 1, 2 or 3 which contains less than about 8% by weight of the graphite platelets.

12. (Previously Presented):

A method for preparing a shaped composite which comprises:

(a) providing a mixture of a finely divided graphite platelets, wherein a precursor graphite has been expanded by heating in a microwave or radiofrequency wave applicator and then pulverized to produce the platelets, which platelets consist essentially of single platelets which are essentially less than 200 microns in length and a polymer with the platelets dispersed therein; and

(b) forming the shaped composite material from the mixture.

13. (Previously Presented):

A method for preparing a shaped composite material which comprises:

(a) providing a mixture of graphite platelets, wherein a precursor graphite has been expanded by heating in a microwave or radiofrequency wave applicator and then pulverized to produce the platelets, which particles consist essentially of single platelets with a length less than about 200 microns and a thickness of less than about 0.1 microns and a polymer with the graphite platelets dispersed therein, wherein the composite material contains up to about 50% by volume of the graphite platelets;

(b) forming the shaped composite material from the mixture.

14. (Previously Presented):

The method of Claims 12 or 13 wherein the graphite platelets are is provided in the polymer in an amount sufficient to render the shaped composite conductive.

15. (Original):

The method of Claims 12 or 13 wherein the polymer is a thermoplastic or thermoset polymer.

16. (Previously Presented):

The method of Claims 12 or 13 wherein the precursor graphite contained an expanding chemical which was at least in part evaporated to form an expanded graphite by the heating which expanded graphite was then pulverized to form the graphite platelets.

17. (Previously Presented):

The method of Claims 12 or 13 wherein the precursor graphite has been expanded by heating the precursor graphite with the microwave applicator.

18. (Previously Presented):

The method of Claims 12 or 13 wherein the precursor graphite has been is treated with a fuming oxy acid and then heated to provide an the expanded graphite which was then pulverized to form the graphite platelets.

19. (Previously Presented):

The method of any one of Claims 12 or 13 wherein the polymer is a curable thermoset resin which is mixed with the graphite platelets and cured.

20. (Previously Presented):

The method of Claims 12 or 13 wherein the shaped composite material contains less than 8% by weight of the graphite platelets.

21. (Previously Presented):

In a battery containing ions the improvement in the anode which comprises a microwave or radiofrequency wave expanded precursor graphite which has been pulverized to form graphite platelets having single platelets with a length less than about 200 microns and a thickness of less than about 0.1 microns.

22. (Previously Presented):

In a catalytic conversion of an organic compound to hydrogen with a catalytic material deposited on a substrate the improvement in the substrate which comprises a finely divided microwave or radiofrequency wave expanded precursor graphite which has been pulverized to graphite platelets with a length less than about 200 microns and a thickness of less than about 0.1 microns.

23. (Previously Presented):

A process for producing graphite platelets which comprises:

(a) expanding by heating a precursor graphite intercalated with a chemical which expands upon heating in a radiofrequency wave or microwave applicator to produce an expanded graphite; and

(b) pulverizing the expanded graphite to produce the platelets so that essentially all of the individual platelets are less than 200 microns in length, 0.1 micron in thickness.

24. (Original):

The process of Claim 23 wherein the chemical agent is an inorganic oxy acid.

25. (Previously Presented):

The process of any one of Claims 23 or 24 wherein the expanding is by the microwave applicator.

26. (Previously Presented):

The composite material of Claim 1 wherein the expanded and pulverized graphite particles are grafted with acrylamide.

27. (Previously Presented):

The method of Claim 12 wherein the expanded and pulverized graphite platelets are grafted with acrylamide.

28. (Previously Presented):

The process of Claim 23 wherein the expanded and pulverized graphite platelets are is grafted with acrylamide.